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*Condor*, 81:217-218  
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## RENESTING OF WHITE-TAILED PTARMIGAN IN COLORADO

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AND

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Renesting by free-ranging grouse has rarely been documented and few references discuss the importance of renests to chick production. Bump et al. (1947: 364) failed to document specific instances of renesting in Ruffed Grouse (*Bonasa umbellus*) although they estimated that 12% of all broods resulted from renestings. Zwickel and Lance (1965) documented renesting in Blue Grouse (*Dendragapus obscurus*); Maxson (1977) provided evidence of renesting by Ruffed Grouse; Choate (1963:113) described renesting by White-tailed Ptarmigan (*Lagopus leucurus*) in Montana.

During 12 years (1966-1977) of intensive research on White-tailed Ptarmigan in Colorado we found two instances of renesting and have data available to estimate its importance to chick production.

### STUDY AREA AND METHODS

Breeding and brood surveys were conducted annually along Trail Ridge Road in Rocky Mountain National Park, Colorado, from 1966 through 1977. A complete description of this study area is provided by Braun and Rogers (1971). We located breeding pairs in spring and broods in summer with tape recorded calls (Braun et al. 1973). Field techniques, including the capture and marking of birds, have been described by Braun and Rogers (1971) and Giesen (1977). Each year essentially the entire breeding population was banded prior to nesting and chicks were captured and marked when first found.

### RESULTS AND DISCUSSION

We observed two hens renest in 1975. On 18 June 1975 the first nest of hen G84 was discovered as she was laying her second egg. By 26 June the nest contained a complete clutch of five eggs and incubation had begun. The hen was incubating on 29 June when the nest was checked at 16:10. This nest was destroyed by a coyote (*Canis latrans*) prior to 11:15 on 6 July. Hen G84 was next seen on 16 August with a brood of eight chicks, four of whom were marked. These four (known to be 25 days of age) were the survivors of a brood in which the hen had been killed. The four unbanded chicks were estimated to be nine days old based on plumage characteristics (Giesen and Braun 1979). Hen G84 may have adopted all eight chicks. However, no known broodless hens were later seen with broods. We calculated that hen G84 began renesting three to nine days after losing her first

clutch, based on a laying interval of 1.5 days/egg and an incubation length of 23 days.

The nest of hen BW27 was found on 23 June when the first of six eggs was being laid. By 1 July incubation had begun. When the nest was checked on 6 July the clutch had been destroyed by a weasel (*Mustela* sp.). Hen BW27 was next observed on 14 September with a brood of three chicks. We captured the chicks and estimated that they were 37 days old. Renesting must have begun four to nine days after loss of the first clutch. Recrudescence of ovarian follicles to ovulation stage in nine days has been demonstrated for Blue Grouse (Hannon 1978).

Between 1966 and 1977 we noted at least 156 marked broods in Rocky Mountain National Park and identified 18 broods (11.5%) that probably resulted from renesting. Our criteria for determination of renesting were smaller brood sizes (2-5 chicks at hatch) and hatching dates more than 15 days later than the median hatch date for a given year. One renesting hen abandoned her mate and nested in the territory of another male. All original nesting attempts we have observed (n = 58) have been within the territory of the hen's mate.

We believe renesting occurred in at least 8 of 12 years. Renesting occurred in both "early" and "late" years based on a 12-year median hatch date of 15 July. In the "earliest" year (1977) the median hatch date was 6 July and 3 of 25 broods (12%) apparently resulted from renesting. In a "late" year (1975) the median hatch date was 22 July and 6 of 23 broods (26%) apparently resulted from renesting. Both adult (2+ years) and yearling hens renested, with adults being more successful in both initial and second nesting attempts (Braun and Rogers 1971).

Although renests accounted for 11.5% of all broods seen in Rocky Mountain National Park between 1966 and 1977, they accounted for only six percent of the chicks surviving until 30 September. This was due to the smaller average clutch size of renests (3.6 eggs vs. 5.9 eggs for initial clutches). Chick mortality prior to 30 September was similar for all broods (30-40%). Long-term survival for progeny of renests was difficult to calculate due to small samples, dispersal of juveniles (especially females) off the study area, and high mortality of chicks (60-70%) during their initial year of life. We know of at least two progeny of renests which survived to breeding age (10-12 months).

### ACKNOWLEDGMENTS

D. R. Stevens (Research Biologist, Rocky Mountain National Park) was helpful in providing permits which made our work possible. H. D. Funk (Colorado Division of Wildlife) and R. A. Ryder (Colorado State University) reviewed an early draft of this paper; their suggestions are appreciated. This is a contribution to Colorado Federal Aid to Wildlife Restoration Project W-37-R.

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Condor, 81:218  
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GOLDEN EAGLE NEST ON  
KODIAK ISLAND, ALASKA

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On 18 July 1975 a Golden Eagle (*Aquila chrysaetos*) nest was reported to the staff at the Kodiak National Wildlife Refuge. Later that day, the nest was located from the air at approximately 200 m elevation, in the rocky crags between Fraser Lake and Akalura Lake, 5.6 km from Olga Bay, Kodiak Island, Alaska (154° 08'W, 57° 12'N). A single young was all that was seen in the nest; it was estimated to be 8-10 weeks of age from the appearance of its tail and wing feathers. I flew over the site on 31 July, and saw the eaglet on a ledge about 10 m from the nest. On

7 August, the young bird was gone. The adults were not seen during any of our visits around the nesting site.

This is the first Golden Eagle nest reported and found on Kodiak Island. Bailey (Condor 77:207-208, 1975) reported a nest in the Izembek National Wildlife Refuge, and a nest has been reported from Tustumena Glacier on the Kenai Peninsula (Univ. of Alaska Records). Staff of the Kodiak National Wildlife Refuge have kept nesting records of Bald Eagles (*Haliaeetus leucocephalus*) at Karluk Lake since 1952. Aerial surveys of nesting Bald Eagles on the entire refuge since 1963 have found from 84 to 195 active nests per year.

*Kenai National Moose Range, P.O. Box 500, Kenai, Alaska 99611. Accepted for publication 14 July 1976.*

Condor, 81:218-219  
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FIRST RECORD OF A BLACKPOLL  
WARBLER FOR THE GALÁPAGOS

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On 16 May 1976, we mist-netted a Blackpoll Warbler (*Dendroica striata*) on Daphne Major Island in the Galápagos Archipelago. The only other parulid known from the Galápagos is the endemic subspecies of the

Yellow Warbler (*Dendroica petechia aureola*; M. Harris, A field guide to the birds of Galápagos, Collins, London, 1974). The Blackpoll Warbler regularly winters in South America, but has seldom been seen west of the Andes. A single individual was collected near Valdivia, Chile, in June 1858, although Bent (Life histories of North American wood warblers. U.S. Natl. Mus. Bull. 203, 1953) suggested that this may have been a bird released from captivity. The nearest records to the Galápagos have been in or to the east of the Andes in Ecuador and Colombia (Bent 1953).

The bird was in male breeding plumage, and appeared to be in good physical condition apart from